

Amendments to the Claims

1. (currently amended): A liquid-phase process for polymerizing α -olefins of the formula $\text{CH}_2=\text{CHR}$, where R is H or a $\text{C}_1\text{-C}_6$ ~~an~~ alkyl radical ~~$\text{C}_1\text{-C}_6$~~ , to produce a polymer that is soluble in a liquid ~~the~~ reaction medium, comprising the steps of:
 - a) continuously polymerising in liquid phase the α -olefin in the presence of a catalyst system based on a transition metal compound;
 - b) continuously withdrawing from step a) a solution of the polymer in the liquid reaction medium;
 - c) mixing in one or more mixing stages said solution of the polymer in the reaction medium with an organic deactivator having $[\text{:}]$ at least a hydroxy group, a boiling point higher than 150°C , and a ratio of ~~between~~ the molecular weight (MW) to ~~and~~ the number of hydroxy groups (n_{OH}) ~~comprised~~ between 20 and 100.
2. (original): The process according to claim 1, wherein said α -olefin is butene-1.
3. (currently amended): The process according to claim 2, ~~claims 1-2~~, wherein a solution of polybutene-1 in the reaction medium is continuously obtained in step a).
4. (original): The process according to claim 3, wherein the reaction medium is liquid butene-1.
5. (currently amended): The process according to claim 1, ~~claims 1-3~~, wherein the polymerization step a) is carried out at a temperature ~~in the range of~~ from 65 to 85°C .
6. (currently amended): The process according to claim 1, ~~claims 1-4~~, wherein the polymerization step a) is carried out at a pressure ~~comprised~~ between 8 and 40 bar.
7. (currently amended): The process according to claim 1, wherein the polymerization step a) is performed in at least one ~~one or more~~ continuously stirred tank reactor. ~~reactors~~.
8. (currently amended): The process according to claim 4, ~~claim 1~~, wherein in step a) a ~~the~~ concentration of polybutene-1 in butene-1 is kept to a value of less than

- 35% by weight.
9. (currently amended): The process according to claim 8, wherein said concentration is ~~comprised~~ between 10 and 30% by weight.
 10. (currently amended): The process according to claim 1, ~~claims 1-9~~, wherein in step a) butene-1 is polymerized in the presence of up to 20% by weight, ~~preferably 0,5-10% by weight~~ based on butene-1, of another α -olefin.
 11. (currently amended): The process according to claim 1, wherein the ratio of the molecular weight (MW) to the number of hydroxy groups (n_{OH}) of the organic deactivator of step c) ~~is the organic deactivator of step c) is characterized by a ratio between the molecular weight (MW) and the number of hydroxy groups (OH) comprised~~ between 30 and 70.
 12. (currently amended): The process according to claim 1, wherein said deactivator is selected from propylene glycol, dipropylene glycol, glycerol, diethylene glycol, and propylen glycol, dipropylen glycol, glycerol, diethylen glycol, butandiol.
 13. (currently amended): The process according to claim 1, wherein the catalyst system of step a) is a Ziegler-Natta catalyst comprising a Ti-based compound as a ~~the~~ solid catalyst component and an Aluminum alkyl compound as an activator.
 14. (currently amended): The process according to claim 13, ~~claims 1-13~~, wherein in step c) the molar ratio of deactivator/(Ti+Al) is higher than $2/n_{OH}$, wherein n_{OH} is the number of hydroxy groups of the deactivator.
 15. (currently amended): The process according to claim 14 wherein said molar ratio is ~~comprised~~ between $3/n_{OH}$ and $6/n_{OH}$.
 16. (currently amended): The process according to claim 1, ~~claims 1-15~~, wherein step c) is carried out in one or more mixing tanks placed in series.
 17. (currently amended): The process according to claim 1, ~~claims 1-15~~, wherein step c) is carried out in a single deactivation apparatus equipped with a sequence of mixing stages.
 18. (currently amended): The process according to claim 17, wherein the deactivation apparatus comprises a stirring shaft provided with impellers in a number ~~comprised~~ between 2 and 20.
 19. (currently amended): The process according to claim 18, ~~claims 17-18~~ wherein

said mixing stages are formed along the shaft of the apparatus by the rotation of each impeller.

20. (currently amended): The process according to claim 18, ~~claims 17-19~~, wherein the impellers are equipped with radial blades fixed at a ~~the~~ stirring shaft, said radial blades causing a radial flow inside each mixing stage.
21. (currently amended): The process according to claim 17, ~~claims 1 and 17-20~~, wherein said polymeric solution and said organic deactivator are continuously fed at an ~~the~~ inlet of said deactivation apparatus and flow slowly through the sequence of said mixing stages.
22. (currently amended): The process according to claim 4, ~~claims 1-21~~, wherein after downstream ~~step c)~~ a ~~the~~ solution of polybutene-1 is passed to a separation step, wherein the polybutene-1 is separated from the unreacted monomer, which is recovered and re-circulated to the polymerization step a).
23. (currently amended): The process according to claim 22, wherein said separation step is carried out by melt devolatilization by means of one or more volatilization chambers operating at a decreasing pressure.
~~chambers operating at a decreasing pressure.~~
24. (new): The process according to claim 10, wherein in step a) butene-1 is polymerized in the presence of 0.5 to 10% by weight based on butene-1, of another α -olefin.